



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/729,151

12/08/2003

Kia Silverbrook

ZF189US

1019

24011 7590 06/03/2008
SILVERBROOK RESEARCH PTY LTD
393 DARLING STREET
BALMAIN, 2041
AUSTRALIA

EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

06/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/729,151	Applicant(s) SILVERBROOK, KIA	
	Examiner LUONG T. NGUYEN	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/27/2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 2, 5-9 filed on 5/27/2008 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 1-2, 5-9 are objected to because of the following informalities:

Claim 1 (line 13), "a plurality of analog signal processors" should be changed to --the plurality of analog signal processors--.

Claims 2, 5-9 are objected as being dependent on claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

Art Unit: 2622

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 5-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (U.S. Patent 6,278,481) in view of Roberts (U.S. Patent 5,541,654) further in view of Gee et al. (U.S. Patent 6,320,617).

Referring to claim 1, the Schmidt reference discloses in Figures 2-6, an image capture and processing integrated circuit (300 in Figure 3, 400 in Figure 4 or 600 in Figure 6) comprising: an image sensor including a plurality of sensor columns (CCD 405 or CMOS 605 imager, see Col. 5, lines 1-21); an analogue-to-digital converter (ADC's) (315 in Figure 3, 430 in Figure 400, see Col. 5, lines 60-65 and Col. 10, lines 50-67) that are connected to the image sensor to convert analogue signals generated by the image sensor into digital signals; image processing circuitry (340 in Figure 3, or 605 in Figure 6, see Col. 5, lines 58-61 and Col. 10, lines 60-65 that is connected to the ADC's to carry out image processing operations on the digital signals, and a print head interface (e.g., output circuit 330 is a standard interface, such as an RS-232) that is connected to the image processing circuitry to receive data from the image processing circuitry and to format that data for a printhead (See Col. 2, lines 22-26 and Col. 5, lines 57-67 and Col. 8, lines 1-8); wherein the integrated circuit define a CMOS active pixel sensor array, and wherein the integrated circuit incorporates a plurality of analog signal processors that are configured to carry out enhancement processes on analog signals generated

by the active pixel sensor array (Schmidt, Figure 6, disclose CMOS processor/imager 605 captures the images, performs any/color processing needed and stores the pixel data in the memory also integrated into the CMOS/imager 605, Figure 6, Col. 10, lines 58-67). However, the Schmidt reference does not explicitly show the ADC (430) includes a plurality of ADC in the image capture and processing integrated circuit.

The Roberts reference teaches in Figures 1 and 6, an image capture and processing integrated circuit (10) comprising: a plurality of analogue-to-digital converters (ADC's) (Four ADCs 166) that are connect to a image sensor to convert analogue signals generated by the image sensor into digital signals (See Col. 9, lines 47-67). The Roberts reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image capture and processing integrated circuit having more flexible design options and including a plurality of analogue-to-digital converters (ADC's) that are connected to a image sensor so that the desired speed of accessing image information from the pixels of the image sensor can be obtained easily. For that reason, it would have been obvious to the one of ordinary skill in the art at the time to modify the image capture and processing integrated circuit of Schmidt ('481) for providing a plurality of ADC in the image capture and processing integrated circuit as taught by Roberts ('654).

The Schmidt and Robert references fail to specifically disclose a plurality of analog signal processors, wherein each analog signal processor is dedicated to process one or more signals generated by a respective one of the plurality of sensor columns. However, Gee et al. reference teaches an active pixel sensor 5, which includes column processing section 5 has individual control circuits 24 for each of the columns within sensor 5 (Figure 1, Col. 3, lines 5-

25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Schmidt and Robert references by the teaching of Gee et al. reference in order to perform the fixed pattern noise reduction operation (Col. 3, lines 45-50).

Referring to claim 2, the Schmidt, Robert and Gee et al. references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which includes a memory device (325 in Figure 3) that is interposed between the image sensor integrated circuit and the image processing circuitry to store data relating to an image sensed by the image sensor integrated circuit (See Col. 5, lines 44-47 and Col. 10, lines 50-67).

Referring to claim 5, the Schmidt, Robert and Gee et al. references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which the image processing circuitry includes color interpolation circuitry to interpolate (any techniques are well known in the computer graphics art, such as perform different color translations or interpolation of the pixel data) pixel data (See Col. 6, lines 36-43 and Col. 9, lines 55-65).

Referring to claim 6, the Schmidt, Robert and Gee et al. references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses in which the

Art Unit: 2622

image processing circuitry includes convolver circuitry that is configured to apply a convolution process (image sharpening process) to the image data (See Col. 5, lines 61-65).

Referring to claim 8, the Schmidt, Robert and Gee et al. references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which is a single integrated circuit as shown in Figure 6 (e.g., CMOS integrated circuit, see Col. 5, lines 15-21; Col. 10, lines 50-67).

Referring to claim 9, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses a camera system which includes the image capture and processing device (300 in Figure 3, 400 in Figure 4 or 600 in Figure 6) as shown in Figures 2-6.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (U.S. Patent 6,278,481) in view of Roberts (U.S. Patent 5,541,654) and Gee et al. (U. S. Patent 6,320,617) further in view of Bagchi et al. (U.S. Patent 5,916,358).

Referring to claim 7, the Schmidt, Robert and Gee et al. references disclose all subject matter as discussed in respected to claim 1, except that the Schmidt reference does not explicitly discloses the print head interface (output circuit 330) is configured to format the data correctly for a pagewidth printhead.

The Bagchi reference discloses in Figures 6 and 24, a image source (52) or CCD camera (633) connected to a Data phasing system (55 as print head interface, see Col. 31, lines 34-37) which configured to format the data correctly for a page width printhead (50) (See Col. 31, lines 1-22, Col. 7, 45-50, Col. 23, lines 30-38 and Col. 44, lines 47-52). The Bagchi reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image capture and processing integrated circuit having the print head interface configured to format the data correctly for a pagewidth printhead so that significantly increase the speed of printing paper. For that reason, it would have been obvious to the one of ordinary skill in the art at the time to modify the image capture and processing integrated circuit of Schmidt ('481) for providing the print head interface (output circuit 330) is configured to format the data correctly for a pagewidth printhead as taught by Bagchi ('358).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LTN
5/31/08

/LUONG T NGUYEN/
Examiner, Art Unit 2622